

FCC TEST REPORT

Product : Thermal Receipt Printer
Trade mark : RONGTA
Model/Type reference : SP01, SP01A, SP01B, SP01C, SP01D,
TP01, TP01A, TP01B, UP01, UP01A,
TP02, TP03, TP04, UP02, UP03
Serial Number : N/A
Ratings : DC 24V $\overline{\text{---}}$ 2.5A
FCC ID : 2AD6G-SP01
Report Number : EED32J001755
Date : Nov. 27, 2017
Regulations : See below

Test Standards	Results
<input checked="" type="checkbox"/> 47 CFR FCC Part 15 Subpart B	PASS

Prepared for:

XIAMEN RONGTA TECHNOLOGY CO.,LTD.
Building C, Hongwei Industrial Park Block 70, Bao'an 70 District,
Shenzhen, Guangdong, China

Prepared by:

Centre Testing International Group Co., Ltd.
Hongwei Industrial Zone, Bao'an 70 District,
Shenzhen, Guangdong, China
TEL: +86-755-3368 3668
FAX: +86-755-3368 3385

Compiled by:

Jackson Wu

Reviewed by:

Paul Chan

Approved by:

Christy Chen

Date:

Nov. 27, 2017

Christy Chen
Lab supervisor

Check No.: 2447657253



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(Note: N/A means not applicable)

1. GENERAL INFORMATION

Applicant: XIAMEN RONGTA TECHNOLOGY CO.,LTD.
 3F-1/ E Plant, Building, No.195, Gaoqishe, Gaodian Village,
 Dianqian Street office, Huli District

Manufacturer: XIAMEN RONGTA TECHNOLOGY CO.,LTD.
 3F-1/ E Plant, Building, No.195, Gaoqishe, Gaodian Village,
 Dianqian Street office, Huli District

Equipment Authorization: Certification

FCC ID: 2AD6G-SP01

Product: Thermal Receipt Printer

Trade mark: RONGTA

Model/Type reference: SP01, SP01A, SP01B, SP01C, SP01D, TP01, TP01A, TP01B, UP01, UP01A, TP02, TP03, TP04, UP02, UP03

Model difference: All models are identical except the model name. The test model SP01 and the test results are applicable to the others.

Serial Number: Not Applicable

Report Number: EED32J001755

Sample Received Date: Aug. 11, 2017

Sample tested Date: Aug. 11, 2017 to Oct. 13, 2017
 The tested sample(s) and the sample information are provided by the client.

2. TEST SUMMARY

The Product has been tested according to the following specifications:

Standard	Test Item	Test
FCC 15.107	Conducted Emission	Yes
FCC 15.109	Radiated Emission	Yes

3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test item	Value (dB)
Conducted disturbance	3.4
Radiated disturbance (30MHz to 1GHz)	5.3

4. PRODUCT INFORMATION AND TEST SETUP

4.1. PRODUCT INFORMATION

Ratings: DC 24V \equiv 2.5A

Adapter information: Manufacture:
GUANGZHOU DAJING SCIENCE AND TECHNOLOGY CO., LTD
Model No.: DJ-240250-SA
Input: 100-240V~, 50/60Hz, 1.5A MAX
Output: 24V \equiv 2.5A MAX

Model difference: All models are identical except the model name. The test model is SP01 and the test results are applicable to the others. Test sample mainboard interface has USB、Serial、Ethernet and Cashbox.

Cable of Product

No.	Cable Type	Quantity	Provider	Length (m)	Specification	Note
1	USB	1	Applicant	1.5	Unshielded	With a ferrite ring in middle Detachable

4.2. TEST SETUP CONFIGURATION

See test photographs attached in Appendix 1 for the actual connections between Product and support equipment.

4.3. SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
1.	Notebook	LENOVO	E421A	00235	---	---

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

5. FACILITIES AND ACCREDITATIONS

5.1 TEST FACILITY

All test facilities used to collect the test data are located at Building C, Hongwei Industrial Park Block 70, Bao'an 70 District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4, CISPR 16-1-1 and other equivalent standards.

FCC-Designation No.: CN1164

Centre Testing International Group Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. The valid time is until Nov. 30, 2018.

5.2 TEST EQUIPMENT LIST

Instrumentation: The following list contains equipments used at CTI for testing.

The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.

Equipment used during the tests:

Shielding Room No. 1 - Conducted Emission Test					
Equipment	Manufacturer	Model	Serial No.	Cal.Date	Cal.Due Date
Receiver	R&S	ESCI	100435	06/15/2017	06/15/2018
LISN	R&S	ENV216	100098	06/15/2017	06/15/2018

3M Semi-anechoic Chamber (2)- Radiated disturbance Test					
Equipment	Manufacturer	Model	Serial No.	Cal.Date	Due Date
3M Chamber & Accessory Equipment	TDK	SAC-3	---	06/04/2016	06/04/2019
Receiver	R&S	ESCI	100009	06/13/2017	06/13/2018
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	484	06/08/2017	06/08/2018
Multi device Controller	maturo	NCD/070/1071 1112	---	N/A	N/A

6. SYSTEM TEST CONFIGURATION

6.1. JUSTIFICATION

The system was configured for testing in a typical fashion (as a customer would normally use it), The Product was placed on a turn table, which enabled the engineer to maximize emissions through its placement as outlined in ANSI C63.4: 2014.

The Product was powered by AC120V/60Hz & AC 240V/50Hz during test.

For maximizing emissions, the Product was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. The rear of unit shall be flushed with the rear of the table.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

6.2. PRODUCT EXERCISING SOFTWARE

No Software was used during testing.

7. CONDUCTED EMISSION TEST

7.1. LIMITS

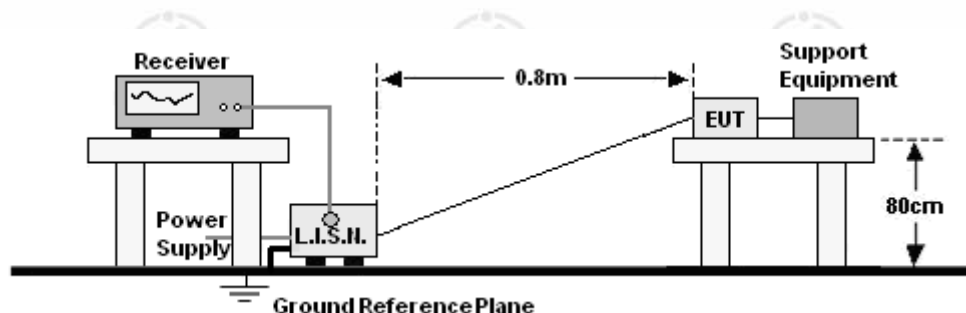
Limits for Class B digital devices

Frequency range (MHz)	Limits dB(μV)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50

NOTE: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz.

7.2. BLOCK DIAGRAM OF TEST SETUP

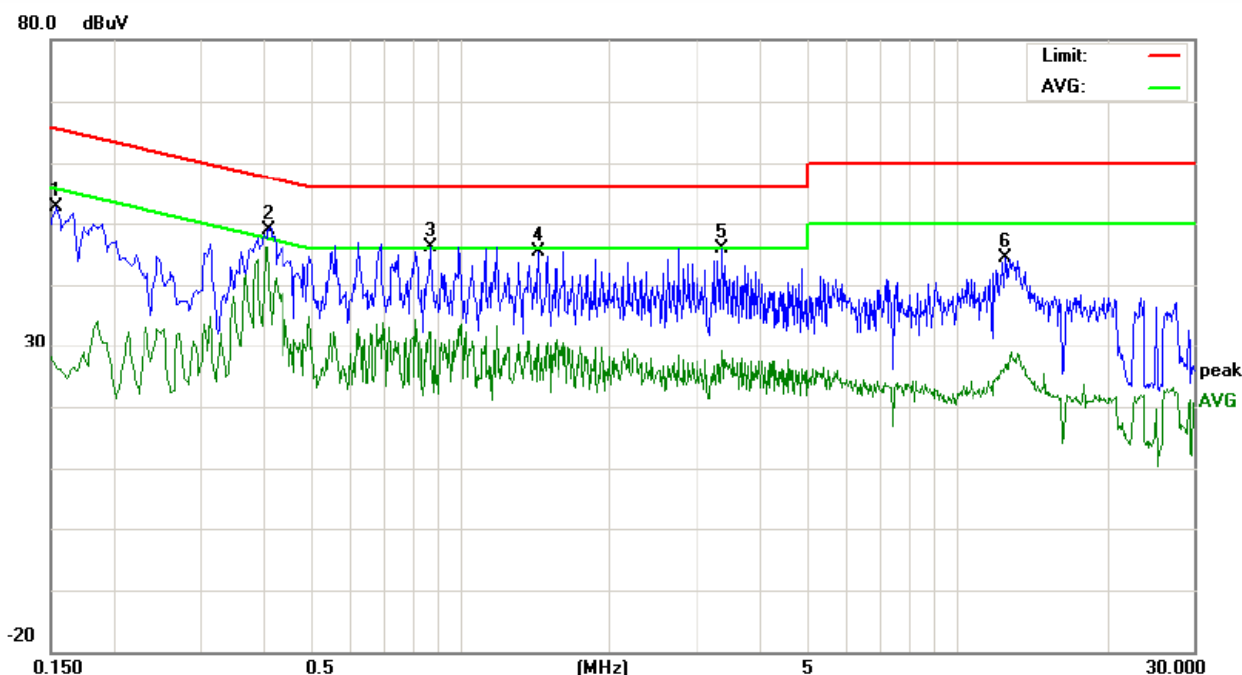


7.3. PROCEDURE OF CONDUCTED EMISSION TEST

- The Product was placed on a nonconductive table above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N.).
- The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.
- For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

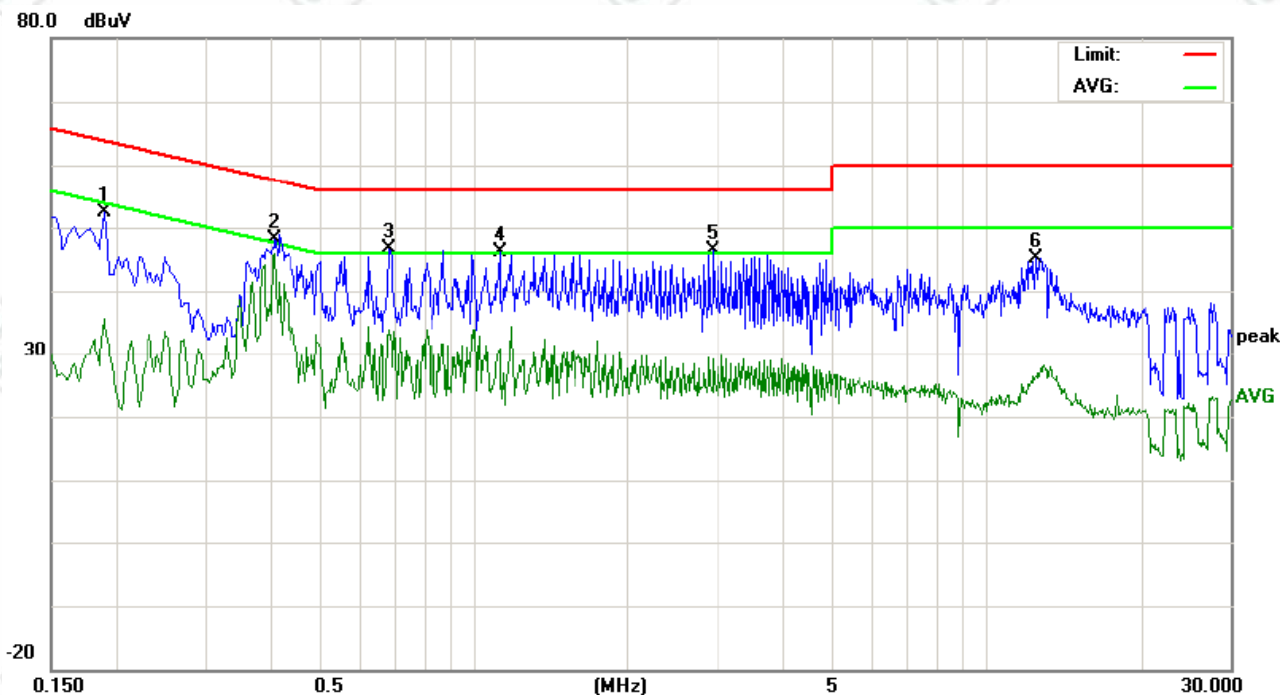
7.4. WORST CASE TEST GRAPHS AND TEST DATA

Product : Thermal Receipt Printer
Model/Type reference : SP01
Power : AC 120V/60Hz **Temperature/Humidity** : 22°C/53%
Mode : Printer **Phase** : L



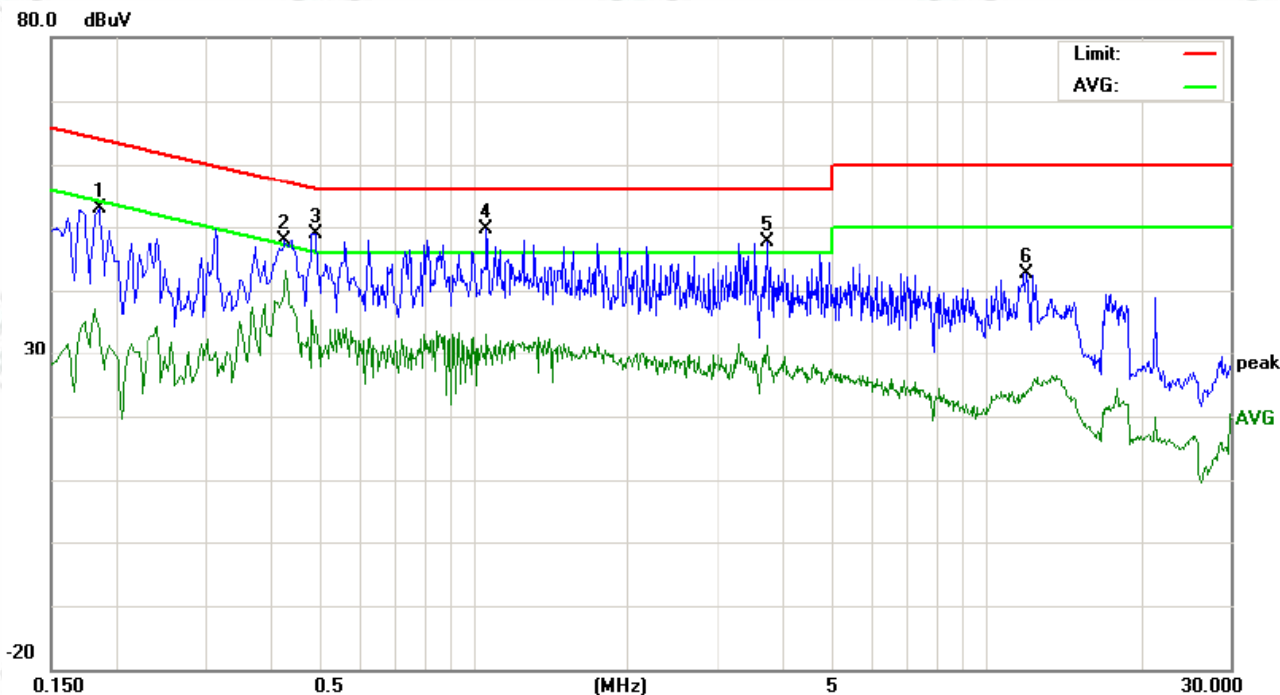
No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1539	42.83	41.03	16.59	9.76	52.59	50.79	26.35	65.78	55.78	-14.99	-29.43	P	
2	0.4060	37.91	37.94	36.71	9.75	47.66	47.69	46.46	57.73	47.73	-10.04	-1.27	P	
3	0.8706	36.42	35.26	22.70	9.75	46.17	45.01	32.45	56.00	46.00	-10.99	-13.55	P	
4	1.4327	35.69	34.16	20.67	9.72	45.41	43.88	30.39	56.00	46.00	-12.12	-15.61	P	
5	3.3626	36.18	33.26	19.45	9.67	45.85	42.93	29.12	56.00	46.00	-13.07	-16.88	P	
6	12.5142	34.43	32.35	16.87	9.90	44.33	42.25	26.77	60.00	50.00	-17.75	-23.23	P	

Product : Thermal Receipt Printer
Model/Type reference : SP01
Power : AC 120V/60Hz **Temperature/Humidity** : 22°C/53%
Mode : Printer **Phase** : N



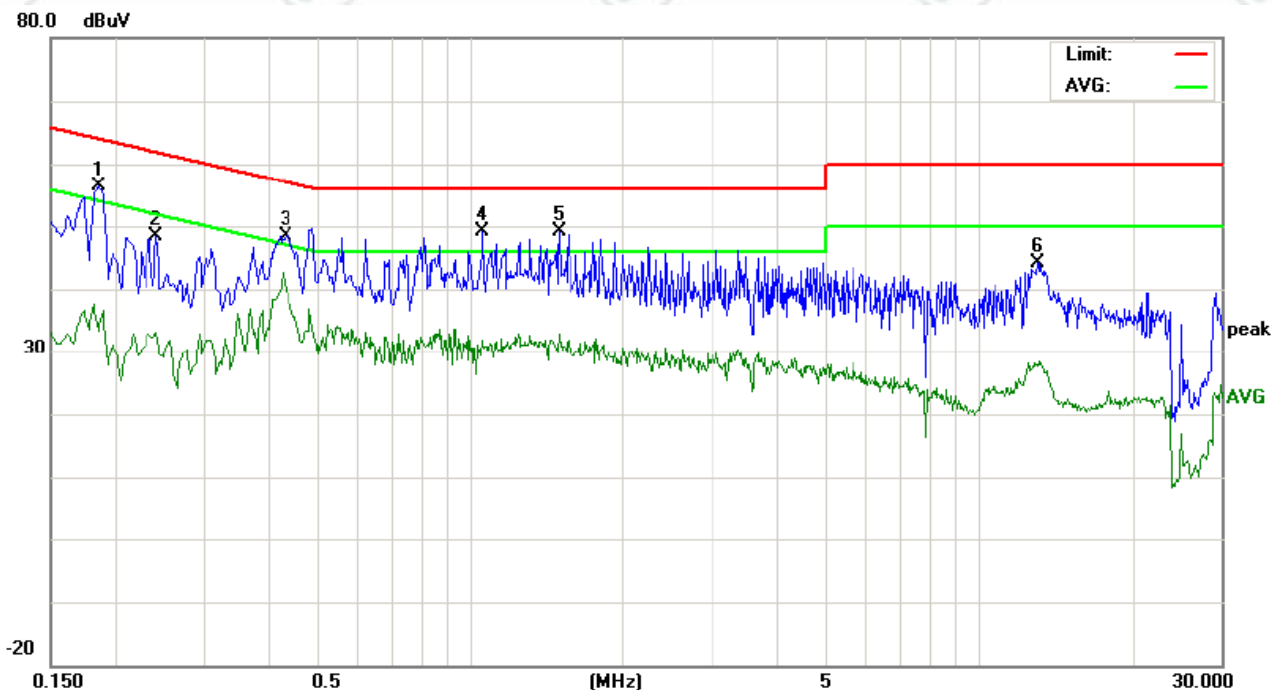
No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1892	42.61	35.89	25.93	9.72	52.33	45.61	35.65	64.07	54.07	-18.46	-18.42	P	
2	0.4081	38.35	37.46	36.06	9.75	48.10	47.21	45.81	57.69	47.69	-10.48	-1.88	P	
3	0.6823	36.76	35.23	24.14	9.75	46.51	44.98	33.89	56.00	46.00	-11.02	-12.11	P	
4	1.1228	36.37	34.26	21.10	9.72	46.09	43.98	30.82	56.00	46.00	-12.02	-15.18	P	
5	2.9298	36.79	35.03	19.53	9.69	46.48	44.72	29.22	56.00	46.00	-11.28	-16.78	P	
6	12.5142	35.24	31.02	16.50	9.90	45.14	40.92	26.40	60.00	50.00	-19.08	-23.60	P	

Product : Thermal Receipt Printer
Model/Type reference : SP01
Power : AC 240V/50Hz **Temperature/Humidity** : 22°C/53%
Mode : Printer **Phase** : L



No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1852	43.07	42.13	24.11	9.73	52.80	51.86	33.84	64.24	54.24	-12.38	-20.40	P	
2	0.4300	37.56	37.79	33.23	9.74	47.30	47.53	42.97	57.25	47.25	-9.72	-4.28	P	
3	0.4912	39.19	38.26	24.64	9.71	48.90	47.97	34.35	56.15	46.15	-8.18	-11.80	P	
4	1.0591	39.95	37.26	23.41	9.72	49.67	46.98	33.13	56.00	46.00	-9.02	-12.87	P	
5	3.7385	38.05	36.13	21.66	9.66	47.71	45.79	31.32	56.00	46.00	-10.21	-14.68	P	
6	11.9947	32.82	31.25	13.95	9.88	42.70	41.13	23.83	60.00	50.00	-18.87	-26.17	P	

Product : Thermal Receipt Printer
Model/Type reference : SP01
Power : AC 240V/50Hz **Temperature/Humidity** : 22°C/53%
Mode : Printer **Phase** : N



No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1852	46.70	44.22	23.76	9.73	56.43	53.95	33.49	64.24	54.24	-10.29	-20.75	P	
2	0.2414	38.64	35.26	23.41	9.74	48.38	45.00	33.15	62.04	52.04	-17.04	-18.89	P	
3	0.4299	38.15	37.58	33.24	9.74	47.89	47.32	42.98	57.25	47.25	-9.93	-4.27	P	
4	1.0590	39.47	37.56	21.63	9.72	49.19	47.28	31.35	56.00	46.00	-8.72	-14.65	P	
5	1.4946	39.48	36.25	23.10	9.72	49.20	45.97	32.82	56.00	46.00	-10.03	-13.18	P	
6	13.0561	34.25	33.26	17.65	9.92	44.17	43.18	27.57	60.00	50.00	-16.82	-22.43	P	

8. RADIATED EMISSION TEST

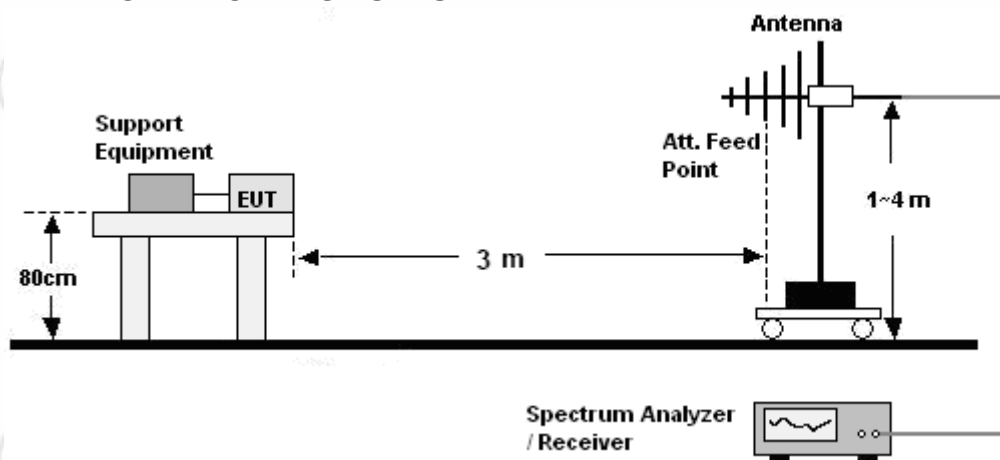
8.1. LIMITS

Limits for Class B digital devices

Frequency (MHz)	limits at 3m dB(μ V/m)
30-88	40.0
88-216	43.5
216-960	46.0
Above 960	54.0

- NOTE:**
1. The lower limit shall apply at the transition frequency.
 2. The limits shown above are based on measuring equipment employing a CISPR quasi-peak detector function for frequencies below or equal to 1000MHz.
 3. The limits shown above are based on measuring equipment employing an average detector function for frequencies above 1000MHz.

8.2. BLOCK DIAGRAM OF TEST SETUP



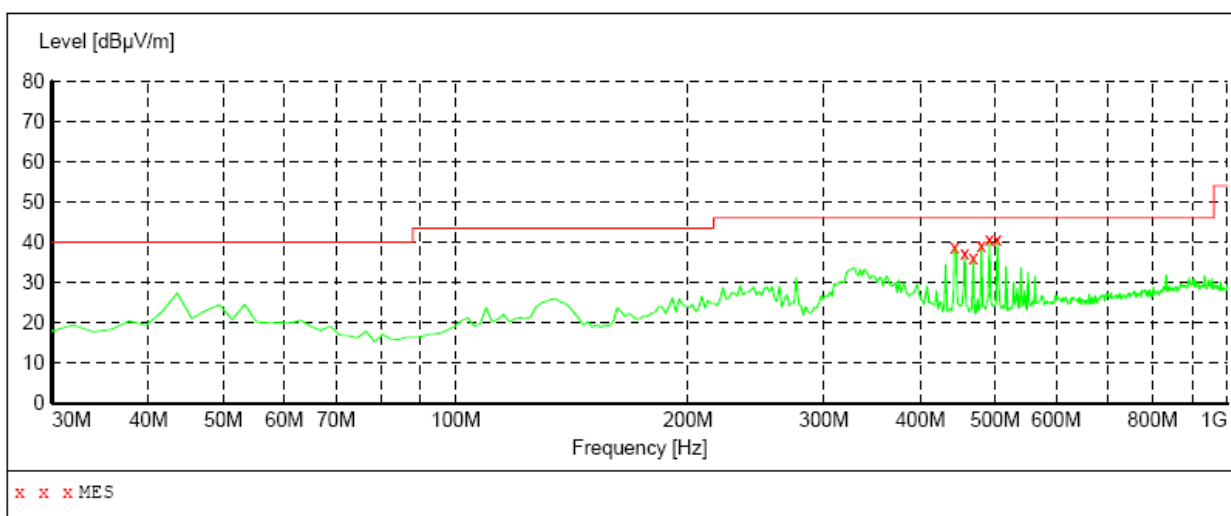
8.3. PROCEDURE OF RADIATED EMISSION TEST

30MHz ~ 1GHz:

- a. The Product was placed on the non-conductive turntable 0.8m above the ground at a chamber.
- b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- c. For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

8.4. WORST CASE TEST GRAPHS AND TEST DATA

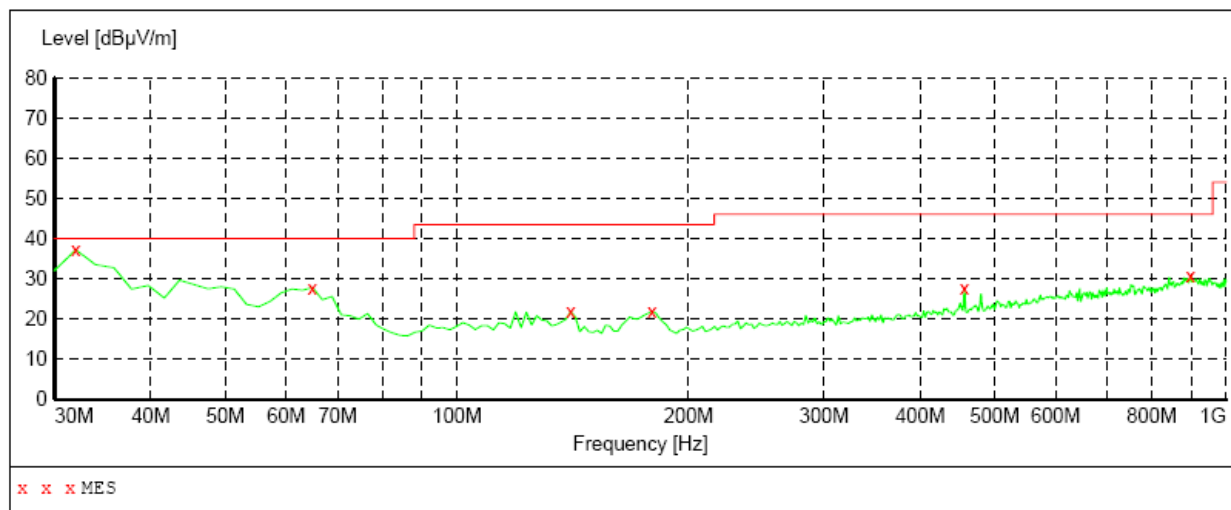
Product : Thermal Receipt Printer
Model/Type reference : SP01
Power : AC 120V/60Hz
Temperature : 22℃
Mode : Printer
Humidity : 50%
Polarization : Horizontal



MEASUREMENT RESULT:

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
443.220000	39.00	17.4	46.0	7.0	QP	100.0	211.00	HORIZONTAL
456.800000	37.40	17.6	46.0	8.6	QP	100.0	137.00	HORIZONTAL
468.440000	36.20	17.9	46.0	9.8	QP	100.0	199.00	HORIZONTAL
480.080000	39.10	18.1	46.0	6.9	QP	100.0	199.00	HORIZONTAL
491.720000	40.60	18.3	46.0	5.4	QP	200.0	171.00	HORIZONTAL
503.360000	40.60	18.5	46.0	5.4	QP	200.0	171.00	HORIZONTAL

Product : Thermal Receipt Printer
Model/Type reference : SP01
Power : AC 120V/60Hz **Temperature** : 22°C
Mode : Printer **Humidity** : 50%
Polarization : Vertical



MEASUREMENT RESULT:

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
31.940000	37.20	12.4	40.0	2.8	QP	100.0	92.00	VERTICAL
64.920000	27.80	12.0	40.0	12.2	QP	100.0	360.00	VERTICAL
140.580000	21.80	10.1	43.5	21.7	QP	100.0	260.00	VERTICAL
179.380000	21.80	11.3	43.5	21.7	QP	100.0	260.00	VERTICAL
456.800000	27.50	17.6	46.0	18.5	QP	100.0	305.00	VERTICAL
899.120000	30.70	24.6	46.0	15.3	QP	200.0	328.00	VERTICAL

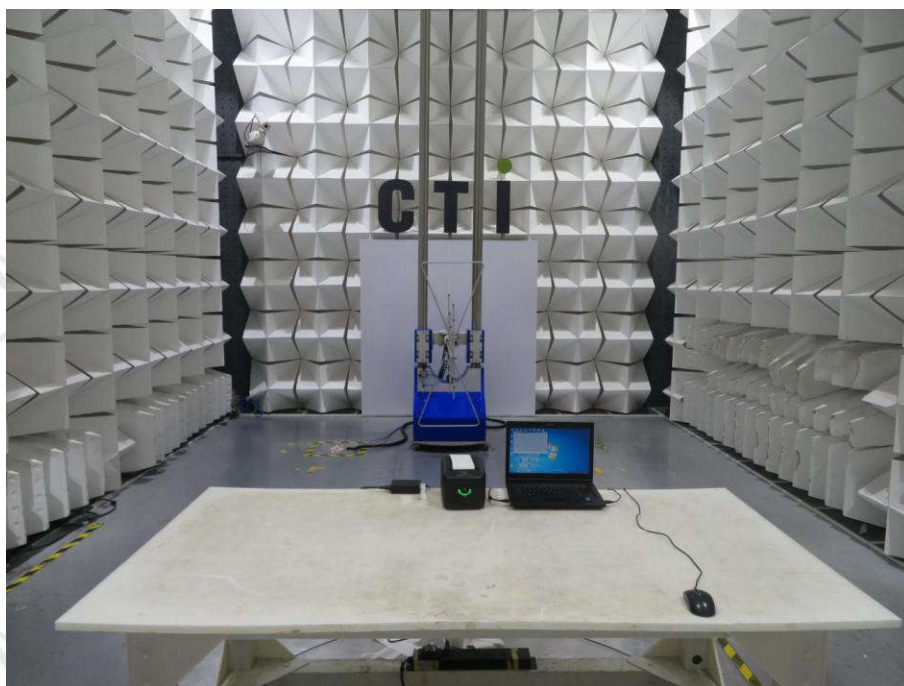
Remark:

The highest frequency of the internal sources of the EUT is 100 MHz, so the measurement shall only be made up to 1 GHz.

APPENDIX 1 PHOTOGRAPHS OF TEST SETUP



CONDUCTED EMISSION TEST SETUP



RADIATED EMISSION TEST SETUP

APPENDIX 2 EXTERNAL PHOTOGRAPHS OF PRODUCT



External View of Product-1



External View of Product-2



External View of Product-3



External View of Product-4



External View of Product-5



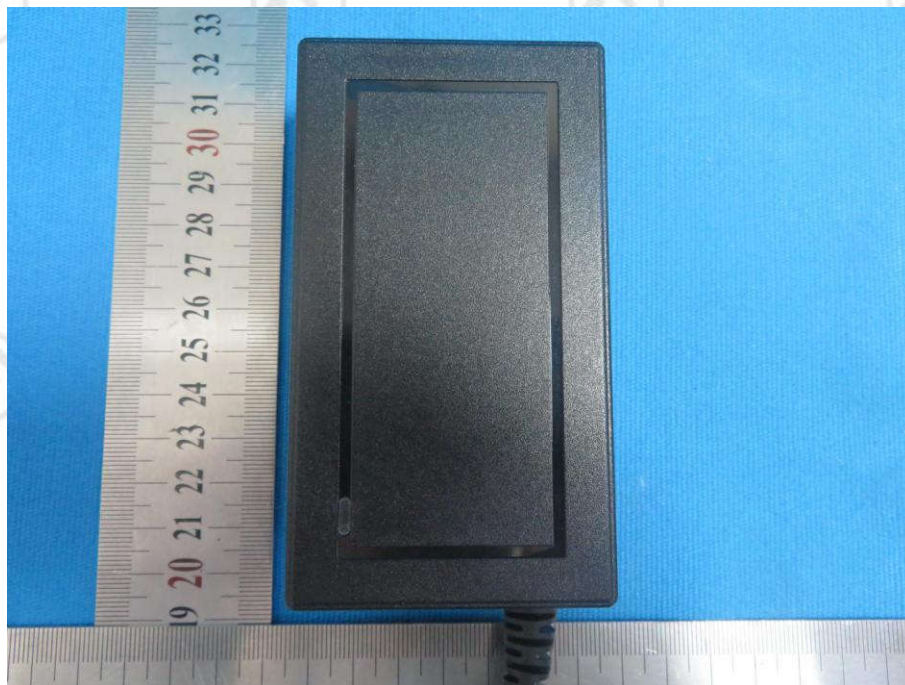
External View of Product-6



External View of Product-7

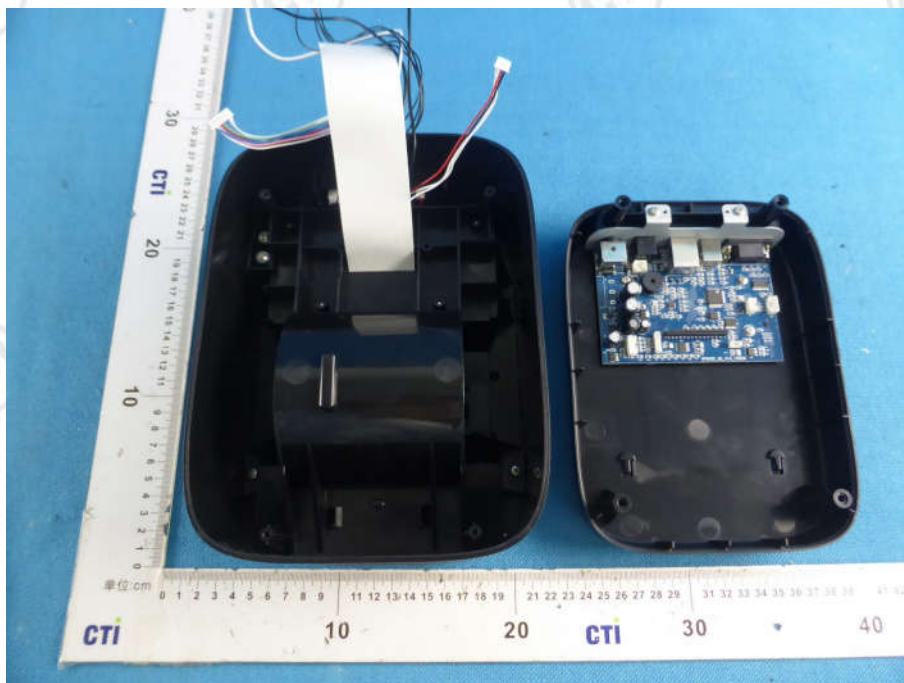


External View of Product-9



External View of Product-10

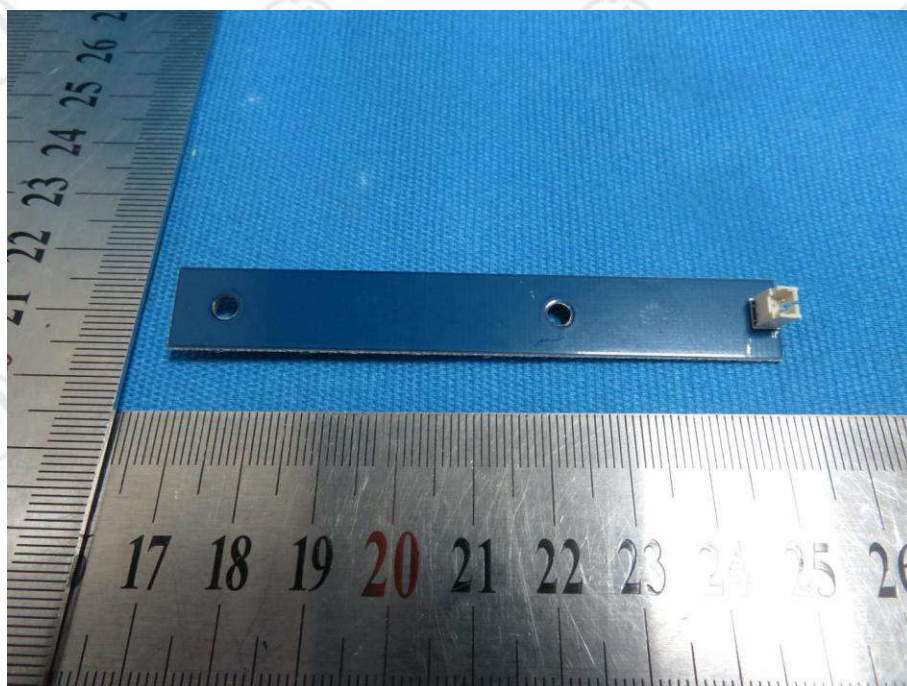
APPENDIX 3 INTERNAL PHOTOGRAPHS OF PRODUCT



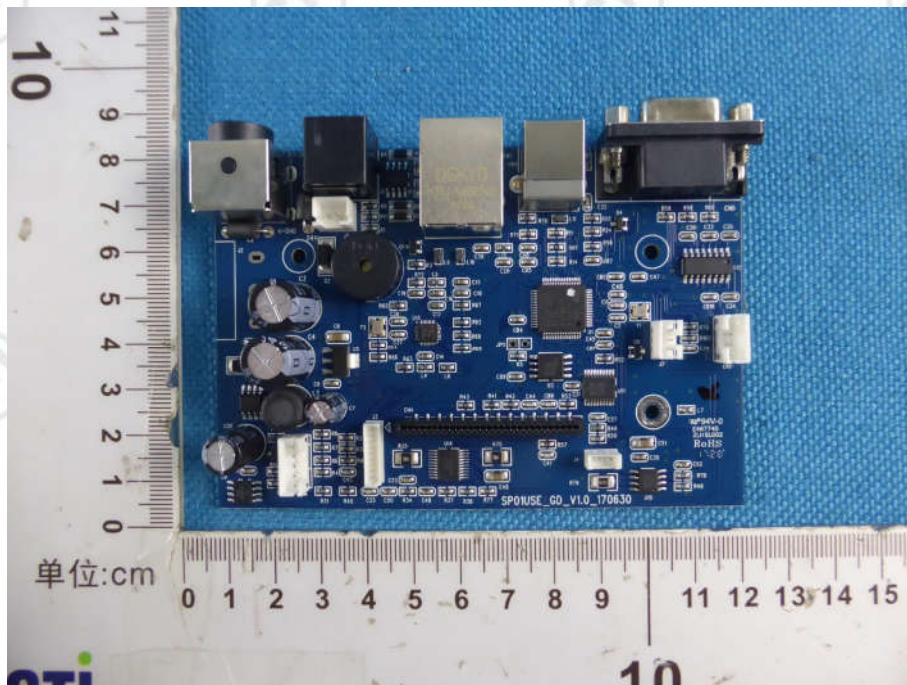
Internal View of Product-1



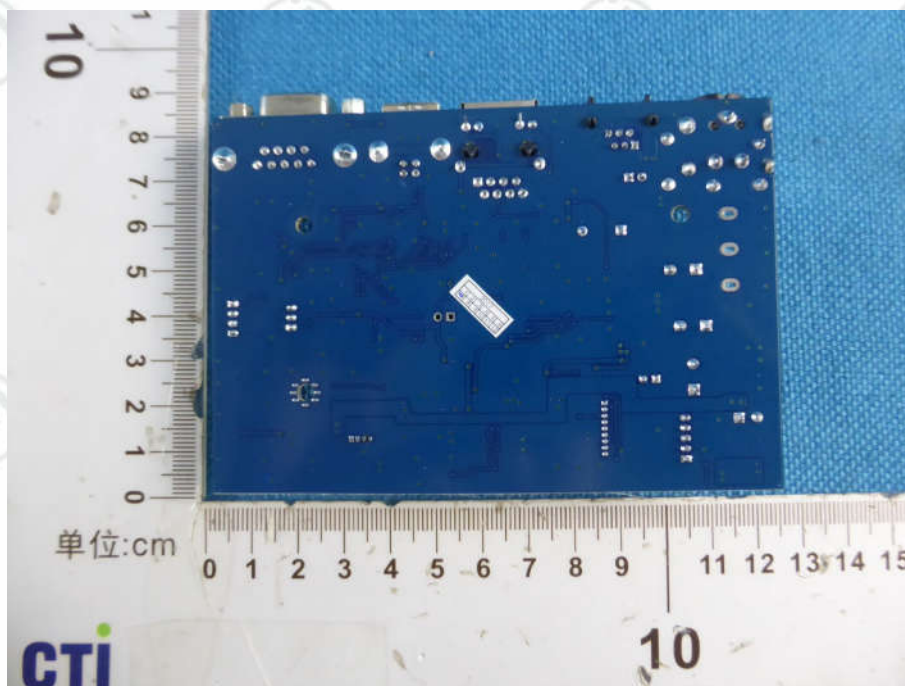
Internal View of Product-2



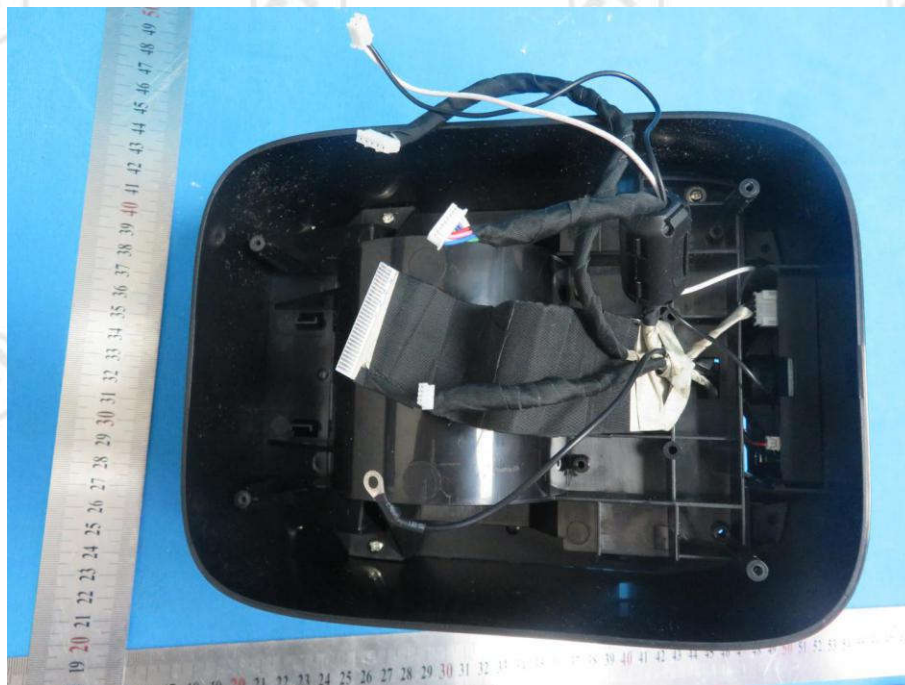
Internal View of Product-3



Internal View of Product-4



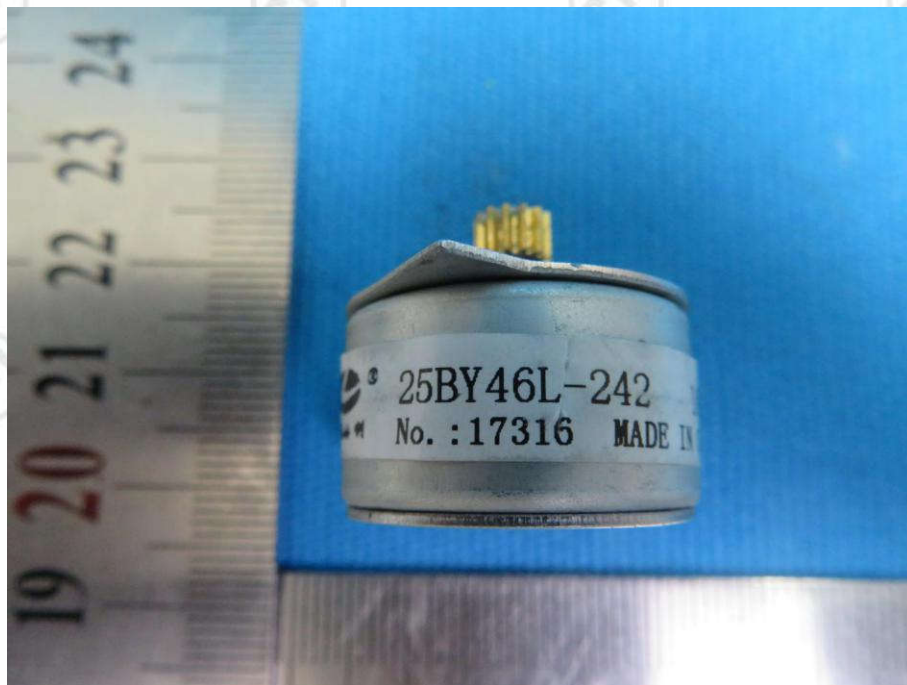
Internal View of Product-5



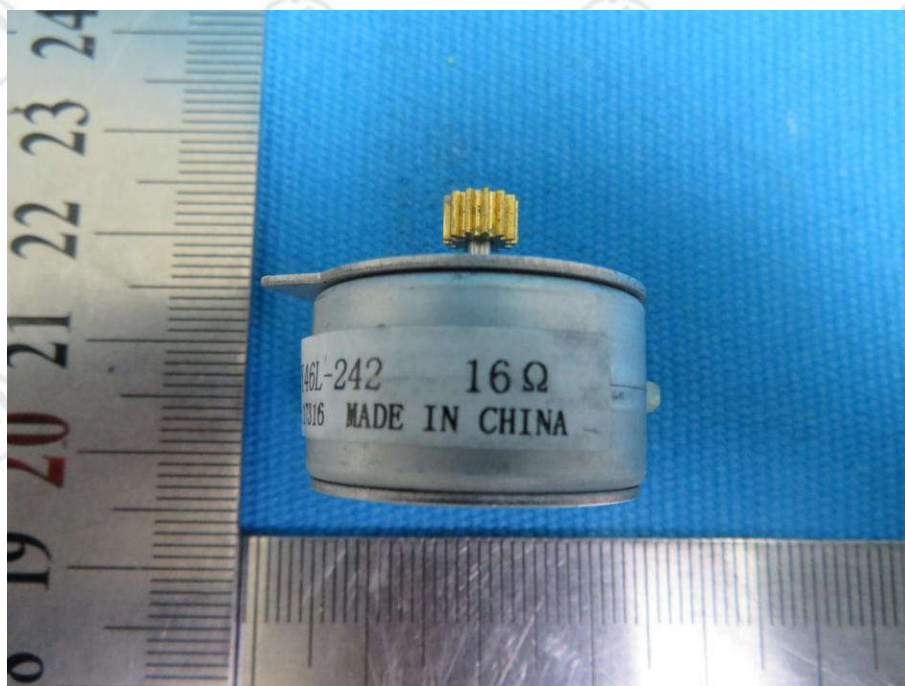
Internal View of Product-6



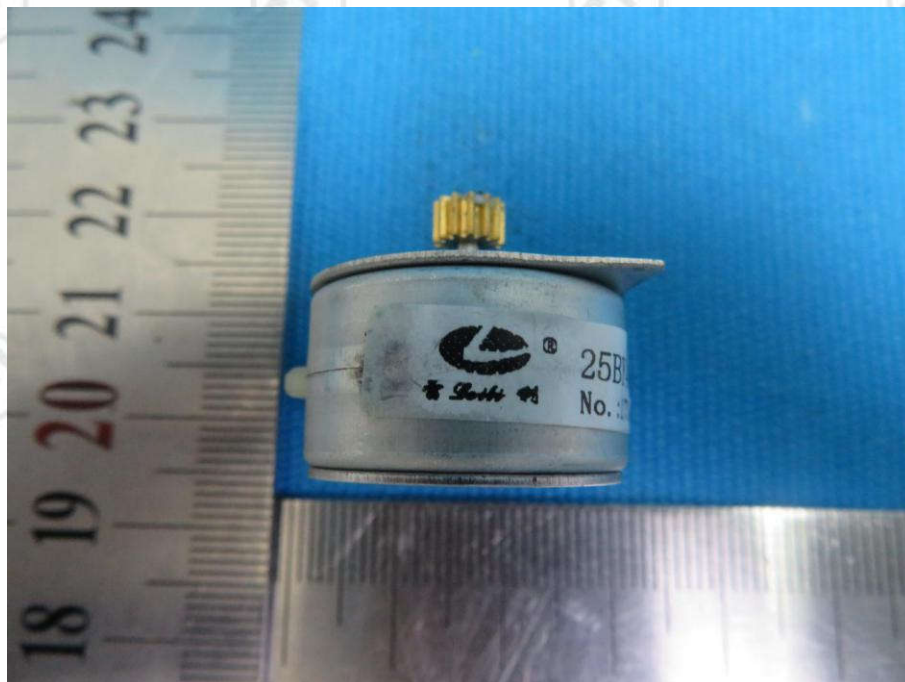
Internal View of Product-7



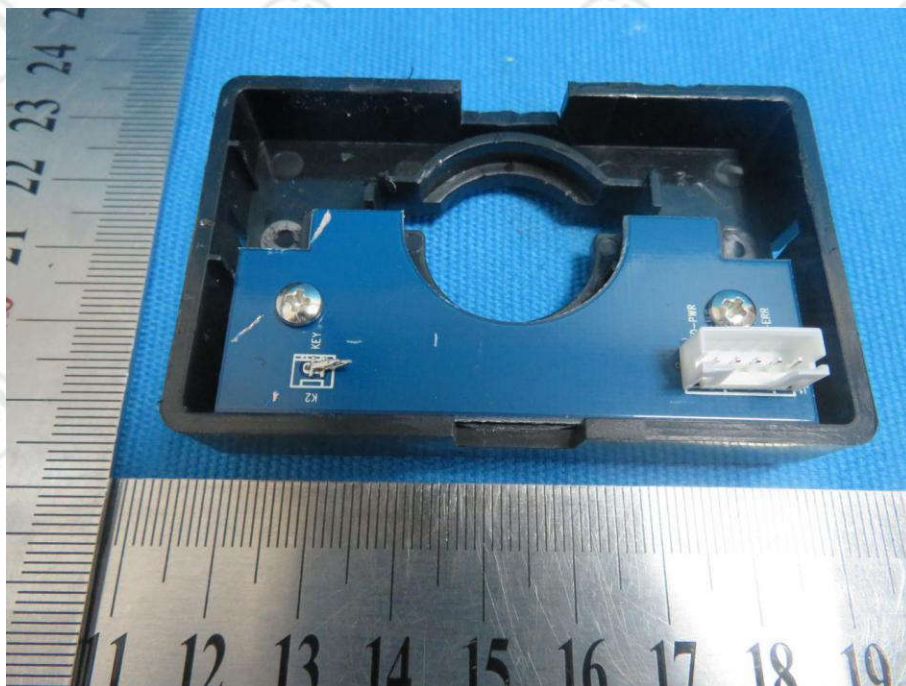
Internal View of Product-8



Internal View of Product-9



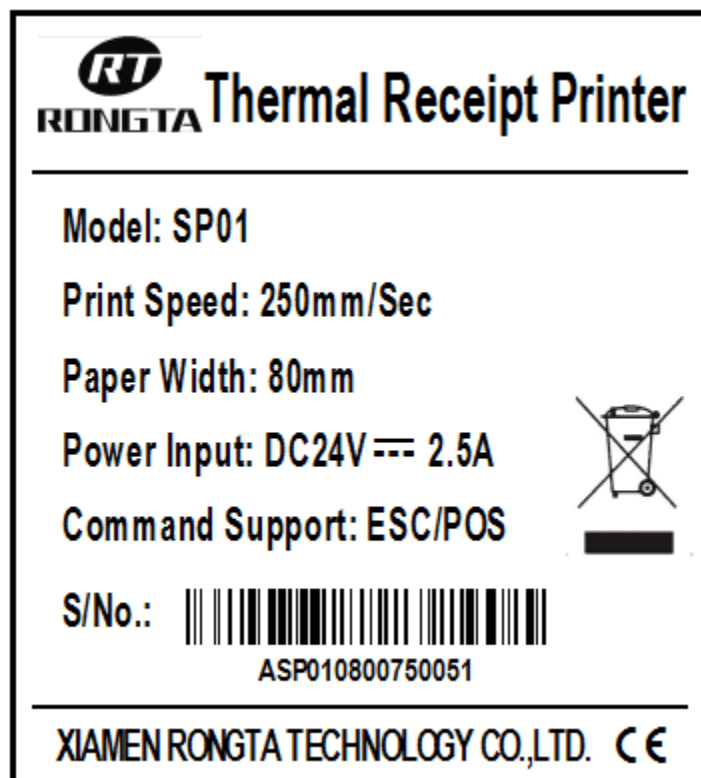
Internal View of Product-10



Internal View of Product-13



Internal View of Product-14



Internal View of Product-15

*** End of Report ***

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